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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,611

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Jesper Samuelsson

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EXAMINER

KEYS, ROSALYND ANN

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/549,611

Applicant(s)

SAMUELSSON ET AL.

Examiner

Rosalynd Keys

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/20/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Status of Claims

1. Claims 1-30 are pending.

Claims 1-30 are rejected.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on September 20, has been considered by the examiner.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The specification to which the oath or declaration is directed has not been adequately identified. See MPEP § 602.

The instant oath indicates that the specification was filed as PCT International Application No. PCT/SE2004/000399 on March 21, 2003. However, form PCT/IB/308 indicates that the filing date is March 18, 2004.

Claim Objections

5. Claims 9, 11, 18, 21 and 23 are objected to because of the following informalities: In claim 9 the compound 2-alkyl-2-hydroxyalkoxy-1, 3-propanediol is misspelled; in claim 11 the

compound trimethylolpropane is misspelled; in claim 18 the compound 2-alkyl-2-hydroxyalkyl-1, 3-propanediol is misspelled; in line 2 of claim 21 the word least is misspelled; and in claim 23 the word diallyl is misspelled. Appropriate correction is required:

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4, 5, 8, 10, 11, 14, 21, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 4 recites the limitation "said optional intermediate purification comprises extraction and optionally further purification by evaporation" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 5 recites the limitation "said optional final purification step comprises purification of the reaction mixture in step (ii) by evaporation" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

10. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "cyclic formal" in claims 8, 10, and 11 is used by the claim to include "non-cyclic compounds such as 1, 2, 3-propanetriol, glycerol, ethoxylated and/or propoxylated glycerol", while the accepted

meaning is "polyol or ethoxylated and/or propoxylated polyol." The term is indefinite because the specification does not clearly redefine the term.

11. Claim 14 is indefinite because the compounds allyl, methallyl bromide and methallyl chloride are not allyl halides.

12. Regarding claim 21, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

13. Claim 27 is indefinite because the compound allyl is not a methallyl halide.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
-

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 22-26 and 28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Roach et al. (US 2,585,035) in view of Hoover (US 1,934,309) and Scott (US 2,183,847).

Roach et al. teach and or clearly suggests allyl and methallyl ethers of polyhydric alcohols (see entire disclosure, in particular the examples). Roach et al. inherently teach or suggest the allyl and methallyl ethers of 5, 5-dihydroxymethyl-1, 3-dioxane during the course of the reactions disclosed therein, in particular see example 1. Said allyl and methallyl ethers of 5, 5-dihydroxymethyl-1, 3-dioxane are inherently taught by Roach et al., since it known from the teachings of Hoover and Scott that cyclic acetals are formed during the condensation of a polyhydric alcohol with an aldehyde (see entire disclosure of Hoover, in particular column 1, lines 6-9 and the entire disclosure of Scott, in particular page 2, left column, lines 22-47). The allyl and methallyl ethers of Roach et al. are obtained from polyhydric alcohols which are condensation products of carbonyl-containing compounds or the like with formaldehyde or its homologues (see column 5, line 70 to column 6, line 6).

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product

does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

"The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

19. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roach et al. (US 2,585,035) in view of Hoover (US 1,934,309) and Scott (US 2,183,847) and further in view of Arundale et al. (US 2,421,862).

Roach et al. inherently teach a process for the production of an allyl and/or methallyl ether of a tri or polyhydric alcohol wherein said process comprises the claimed steps i) and ii) (see entire disclosure, in particular column 2, lines 30-55; column 4, line 55 to column 6, line 38; the examples and claims 1-10, 16-24, and 26). The Examiner believes that the instant invention is inherently taught by Roach et al. because during the normal course of operation of the process of Roach et al. a cyclic formal compound is formed and said cyclic formal is etherified to yield a allyl and/or methallyl ether of said cyclic formal, which is then reacted with at least one alcohol during the extraction step taught by Roach et al. yielding the claimed allyl and/or methallyl ethers of a tri or polyhydric alcohol. The cyclic formal starting material is a by-product produced during the synthesis of the polyhydric alcohol of Roach et al. (see Roach, in particular column 5, line 70 to column 6, line 11; Hoover, in particular column 1, lines 6-9 and Scott, in particular page 2, left column, lines 22-47), which results in a substantial saving in the economics of the process (see column 5, line 70 to column 6, lines 11). A suitable temperature for step i) includes a temperature of 70-110°C, although lower or higher temperatures may be used (see column 5, lines 1-6). The unsaturated ether product may be further purified via extraction and distillation (see column 5, lines 15-25). Considerable variation in the polyhydroxy compound is

possible (see column, lines 18-60). Thus, the use of the claimed cyclic formals is inherently taught or suggested. The basic catalyst includes a strong caustic solution such as 50% NaOH or basic substance of similar nature (see column 4, line 69 to column 5, line 1).

Roach et al. in view of Hoover and Scott fail to teach the temperature at which the alcohol reacts with the allyl and/or methallyl ether of the cyclic formal or the use of a catalyst.

Arundale et al. teach a process wherein cyclic acetals or unsaturated derivatives thereof are converted to the corresponding polyhydric alcohols or unsaturated derivatives thereof by treating said cyclic acetals or unsaturated derivatives thereof with an alcohol in the presence or absence of an organic catalyst, such as toluene sulfonic acid at varying temperatures, in accordance with the reactants used, but ordinarily between 50° and 150°C and the resultant product is recovered by vacuum distillation (see entire disclosure, in particular column 1, line 30 to column 38; column 3, line 72 to column 4, line 29; column 5, lines 30-59; column 6, line 22 to column 7, line 13).

One having ordinary skill in the art at the time the invention was made would have found it obvious that during the extraction step with alcohol in the process of Roach et al. that any unsaturated ether of the cyclic formal present would be expected to be converted to the corresponding ether of tri or polyhydric alcohol, since Arundale et al. teach that in the presence or absence of a catalyst, at temperatures between 50° and 150°C, a cyclic acetal will react with an alcohol to produce the corresponding polyhydric compound. The skilled artisan would be motivated to utilize a catalyst, as taught by Arundale et al., during the conversion in Roach et al. in order to increase the reaction rate (see column 2, lines 1-4 of Arundale).

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wittcoff et al. (US 2,520,670) teach that polyglycerols are higher-functional polyalcohols which are generally prepared by high temperature polymerization of glycerol with the resulting product being a mixture of various polymers of glycerol contaminated with various by-products such as acrolein (see entire disclosure, in particular column 1, lines 3-9).

Burger et al. (US 3,290,388) teach allyl ethers of m-dioxanes are prepared by reacting the sodium or potassium salt of the corresponding dioxolanemethanol or dioxanol with an unsaturated halide such as methallyl chloride (see entire disclosure, in particular column 1, lines 8-43). Burger et al. also disclose a process for the conventional hydrolysis or alcoholysis of the disclosed dioxanes in the presence of an acid catalyst to obtain the corresponding ethers (see column 1, lines 51-68).

S. Carpenter et al. (US 3,567,665) disclose a process for preparing unsaturated ethers of polyhydric alcohols which are obtained from aldehydes (see entire disclosure, in particular column 2, line 43 column 3, line 75; column 5, line 59 to column 7, line 19).

Gupta et al. (US 5,672,768) teach that depending upon the procedure used polyether polyols products generally contain substances such as aldehydes, dioxolanes, dioxanes, allyl alcohol, and mono-, di- and tripropylene glycol allyl ethers (see column 1, lines 18-33).

Thigpen (US 5,690,793) teaches that cyclic formals are known to be obtained from cyclizing reactions between a corresponding glycol and an aldehyde (see column 1, lines 20-40).

Fujio et al. (abstract of JP 3622231 41 A) teach production of an allyl ether by reacting pentaerythritol with allyl chloride in an aqueous solution of an alkali metal hydroxide using an allyl alcohol as a reaction accelerator (see attached abstract).

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M, R & F 5:30-7:30 am & 1-5 pm; T & W 5:30 am-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rosalynd Keys/
Primary Examiner
Art Unit 1621

January 30, 2008